

# AIR FORCE AUDIT AGENCY



## T-3A AIRCRAFT MANAGEMENT



# AUDIT REPORT

**F2007-0001-FD4000**  
**16 November 2006**



## INTRODUCTION

The T-3A Firefly is a propeller driven trainer aircraft that Air Education and Training Command (AETC) used



during most of the 1990s to train and screen pilot candidates. The Air Force Chief of Staff grounded the fleet in July 1997 following three fatal mishaps at the Air Force Academy. The Air Force purchased

113 T-3A aircraft in 1992 at a cost of \$33 million, and an independent appraisal conducted by Richard Schuster and Associates in February 2000 valued the remaining 110 aircraft at approximately \$14 million.

## OBJECTIVES

We performed this audit because trainer aircraft such as the T-3A represent a significant Air Force investment. Our objective was to determine whether Air Force officials properly managed the T-3A fleet. Specifically, we determined whether personnel properly maintained the T-3A and disposed of aircraft identified as excess to mission requirements.

## CONCLUSIONS

Air Force personnel neither properly maintained the T-3A fleet nor disposed of aircraft identified as excess to mission requirements. Specifically, Air Force personnel neither properly stored nor maintained the 110 T-3A aircraft (valued at approximately \$14 million) after the maintenance contract expired in October 2000. Further, while AETC personnel identified the 110 T-3A as excess to mission requirements in October 1999 and requested disposition instructions, the Air Force Strategic Plans and Programs Office, Combat Support and Analysis Division (AF/A8PL) personnel did not provide the necessary disposition instructions. Properly maintaining aircraft preserves value and provides a wider range of disposition options. In addition, disposing of the 110 excess T-3A aircraft will allow AETC personnel to discontinue the \$142,000 annual security guard contract and avoid more than \$852,000 in contract costs over the 6-Year Future Years Defense Plan. (Tab A, page 3).

## Executive Summary

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### RECOMMENDATIONS

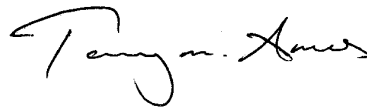
We made two recommendations for the Deputy Chief of Staff for Strategic Plans and Programs (AF/A8) to improve the excess aircraft maintenance and disposition process. (Reference Tab A for the specific recommendations.)

### MANAGEMENT'S RESPONSE

Management officials agreed with the audit results, recommendations, and \$852,196 potential monetary benefit, and corrective actions taken and planned are responsive to the issues and recommendations included in this report.



RONALD M. JENSEN  
Associate Director  
(Manpower and Personnel Division)



TONY M. AMES  
Deputy Assistant Auditor General  
(Support and Personnel Audits)

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# Tab A

## T-3A Maintenance and Disposition

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### SYNOPSIS

Air Force personnel neither properly maintained the T-3A fleet nor disposed of aircraft identified as excess to mission requirements. Specifically, Air Force personnel neither properly stored nor maintained the 110 T-3A aircraft (valued at approximately \$14 million) after the maintenance contract expired in October 2000. Further, while AETC personnel identified the 110 T-3A aircraft as excess to mission requirements in October 1999 and requested disposition instructions, AF/A8PL personnel did not provide the necessary instructions. This occurred primarily because Air Force Instruction (AFI) 21-103, *Equipment Inventory, Status and Utilization Reporting*, 14 December 2005, and AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination*, 1 August 1997, did not contain sufficient guidance on excess aircraft maintenance and disposition, and Air Staff officials were reluctant to submit a T-3A disposition plan for Air Force Chief of Staff approval due to ongoing litigation. Properly maintaining aircraft preserves value and provides a wider range of disposition options. In addition, disposing of the 110 T-3A aircraft will allow AETC personnel to discontinue the \$142,000 annual T-3A security guard contract at the Hondo Municipal Airport (Auxiliary Field) and avoid more than \$852,000 in contract costs over the 6-Year Future Years Defense Plan.

### BACKGROUND

The Air Force Chief of Staff grounded the T-3A fleet in July 1997 following three fatal Air Force Academy mishaps. As a result of the mishaps, several cadet family members filed lawsuits against the aircraft manufacturer (Slingsby Aviation), and Slingsby Aviation sued the Air Force to recoup the cost of providing Federal Aviation Administration certificates.



Aircraft must be maintained in a safe, serviceable, and ready condition to meet mission requirements. When an aircraft is not in flying status, the aircraft should be stored to preserve the condition and value of the aircraft. Storage options include transferring the aircraft to the Aerospace Maintenance and Regeneration Center (AMARC) at Davis-Monthan AFB or performing periodic maintenance in place.

To maintain aircraft such as the T-3A in place, maintenance personnel, at a minimum, should start the engines every 30 days and continue required inspections. If transferred to

## Tab A

### T-3A Maintenance and Disposition

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AMARC, the aircraft undergoes a preservation process to maintain the integrity of the systems. For aircraft in short-term (flyable hold) storage,<sup>1</sup> AMARC personnel keep the fuel system full, start the engine for at least 15 minutes every 14 days, and cycle the propeller through the entire pitch range three times. For long-term storage, AMARC personnel:

- Drain aircraft fuel systems, refill them with lightweight oil, run the engines, and drain the systems.
- Wash the aircraft and perform a corrosion control procedure.
- Cover engine intakes, exhausts and any gaps or cracks in the upper portion of the airframe with paper and tape.
- Spray the covered areas and other easily damaged surfaces (such as fiberglass radomes, fabric control surfaces, and canopies) with a protective compound.

Major commands (MAJCOMs) report excess aircraft<sup>2</sup> to the Air Force Strategic Plans and Programs Office, Combat Support and Analysis Division (AF/A8PL). To dispose of excess aircraft, AF/A8PL personnel must submit a disposition plan to the Air Force Chief of Staff<sup>3</sup> for approval. AF/A8PL personnel must also coordinate the disposition plan with various Headquarters Air Force (HAF) organizations such as Force Programmers; the Deputy Chief of Staff for Air, Space, and Information Operations, Plans and Requirements; the Deputy Chief of Staff for Logistics, Installations, and Mission Support; and the Assistant Secretary of the Air Force for International Affairs.

The aircraft disposition process requires Air Staff officials to identify other Air Force requirements, and if none exist, to screen other military services and DoD agencies to determine whether they could use the aircraft. Air Force officials can also transfer excess aircraft to other Federal government agencies or sell them through the General Services Administration if the aircraft are approved for commercial sale in DoD 4160.21-M, *Defense Materiel Disposition Manual*, August 1997.

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<sup>1</sup> Short term storage is generally used for aircraft awaiting disposition (usually limited to 90 days).

<sup>2</sup> For the purposes of this report, the term “excess” is used to identify aircraft that the owning MAJCOM has identified as no longer needed to meet mission requirements. Aircraft are not officially considered “excess” to Air Force requirements until the Air Force Chief of Staff approves the disposition plan.

<sup>3</sup> The Air Force Chief of Staff delegated approval authority to the Air Force Strategic Plans and Programs Office, Director of Programs (AF/A8P).



## **AUDIT RESULTS 1 – EXCESS AIRCRAFT**

**Condition.** Air Force personnel neither properly maintained the T-3A fleet nor disposed of aircraft identified as excess to mission requirements. Specifically, Air Force personnel neither properly stored nor maintained the 110 T-3A aircraft (valued at approximately \$14 million) after the maintenance contract expired in October 2000. Further, while AETC personnel identified the 110 T-3A aircraft as excess to mission requirements in October 1999 and requested disposition instructions,<sup>4</sup> AF/A8PL personnel did not provide the necessary instructions.

- **Maintenance.** AETC personnel notified Air Staff officials in September 2000 that the T-3A maintenance contract would expire in October 2000, but Air Staff officials took no action to either transfer the aircraft to AMARC or arrange for other appropriate maintenance and storage. The 110 T-3A aircraft have remained at the Hondo Municipal Airport (Auxiliary Field)<sup>5</sup> with no long term maintenance and storage actions performed for 6 years.<sup>6</sup> For example, personnel did not periodically run the engines nor perform other required periodic maintenance and long-term storage actions such as draining the systems and performing corrosion control measures. Additionally, 45 of the aircraft were exposed to the elements under canopies<sup>7</sup> and 44 aircraft incurred approximately \$227,280 in hail damage in March 2002 (Figure 1).

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<sup>4</sup> AETC personnel requested disposition instructions at least five times from September 1999 through June 2005. Reference Appendix I, Historically Significant Dates, for additional information.

<sup>5</sup> When the decision was made to store the aircraft at the Hondo Municipal Airport (Auxiliary Field), AETC personnel entered into a \$142,000 annual T-3A security contract with Smith Legacy Security to safeguard the aircraft.

<sup>6</sup> AETC personnel accomplished limited maintenance such as spinning the propellers, installing desiccant holders (instead of spark plugs), and taping up air vents to prevent insects from getting in the aircraft.

<sup>7</sup> AETC personnel stored 45 aircraft under canopies, 10 aircraft in a hangar at the Hondo Municipal Airport (Auxiliary Field), and 4 aircraft in a hangar at Edwards AFB, California. Additionally, 51 aircraft had been disassembled for shipment from the Air Force Academy to the Hondo Municipal Airport (Auxiliary Field) in February 2003 and remained stored in the original shipping containers.

## Tab A

### T-3A Maintenance and Disposition

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Figure 1. T-3A Hail Damage

- Disposition. Air Staff personnel did not properly dispose of the 110 T-3A aircraft after AETC identified them as excess to mission requirements in October 1999. The excess T-3A aircraft remained in the Air Force inventory with a book value of \$35.8 million, and AF/A8PL personnel did not:
  - Find an alternative Air Force mission for the aircraft.
  - Screen other military services and DoD agencies to determine if they could use the aircraft.
  - Otherwise dispose of the aircraft by sale or transfer to another Federal government agency.

**Cause.** These conditions occurred because AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination*, 1 August 1997, did not assign maintenance responsibility (e.g., Air Staff, MAJCOM) for excess aircraft in storage awaiting disposition.<sup>8</sup> Further, Air Staff officials were reluctant to submit a T-3A disposition plan for Air Force Chief of Staff approval due to the on-going litigation, and AFI 16-402 did not specify a time limit for completing the disposition process. Therefore, Air Staff officials were able to postpone the T-3A disposition decision indefinitely.

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<sup>8</sup> While AFI 21-103, *Equipment Inventory, Status, and Utilization Reporting*, 14 December 2005, required the owning MAJCOM to maintain aircraft in their possession, AETC personnel notified AF/A8PL personnel that the maintenance contract was expiring, and neither AF/A8PL nor AETC personnel made other T-3A maintenance arrangements.

**Impact.** Properly maintaining aircraft preserves value and provides a wider range of disposition options. The following T-3A reuse efforts illustrate this point:

- Oklahoma City Air Logistics Center (ALC) T-3A Fleet Assessment. Because the T-3A fleet was neither maintained nor disposed of since October 2000, engineers at the Oklahoma City ALC determined the fleet was no longer airworthy and economically unfeasible to return to an airworthy condition. In June 2002, Oklahoma City ALC personnel estimated it would cost over \$10 million to return the 110 T-3A aircraft to fully operational status and an additional \$7.7 million annually in sustainment costs.<sup>9</sup>
- Air Combat Command (ACC) T-3A Companion Trainer Study. Likewise, ACC personnel considered using 52 of the aircraft as companion trainers in October 2002, but they estimated it would cost at least \$11 million to make the 52 aircraft fully operational and an additional \$8 million annually in sustainment costs.

Disposing of the 110 T-3A aircraft will allow AETC personnel to discontinue the \$142,000 annual security guard contract and avoid more than \$852,000 in contract costs over the 6-Year Future Years Defense Plan.

**Management Corrective Action.** The Air Force settled the Slingsby Aviation lawsuit for \$5.5 million in July 2005. Subsequently, during the audit:

- AF/A8PL personnel began screening other military services and DoD agencies to determine whether they could use the aircraft. However, AF/A8PL personnel did not attempt to sell or transfer the aircraft to other Federal government agencies because the T-3A was not approved for commercial sale in DoD 4160.21-M, *Defense Materiel Disposition Manual*, August 1997.<sup>10</sup> In addition, a 27 July 2005 Air Force General Council (SAF/GC) memorandum, *Liability Exposure from the Sale of the T-3A Aircraft*, concluded that if the Air Force sold the aircraft, the Government could be held significantly liable from third party lawsuits, and selling the planes “as is” would not negate the issue.

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<sup>9</sup> *Report of Findings, T-3A Fleet Condition Assessment*, 10 June 2002.

<sup>10</sup> Before offering aircraft for commercial sale, military services must “demilitarize” (remove military design characteristics) the aircraft and identify the method of demilitarization. However, since the T-3A was not approved for commercial sale and SAF/GC concluded the Government could be held significantly liable from T-3A-related third-party lawsuits, we did not evaluate demilitarizing the T-3A for potential sale.

## Tab A

### T-3A Maintenance and Disposition

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- AF/A8PL personnel processed and coordinated a T-3A disposition plan and obtained AF/A8P approval to remove the 110 T-3A aircraft from the active inventory, reclamated<sup>11</sup> the aircraft in place at the Hondo Municipal Airport (Auxiliary Field), and sell salvageable materials through the Defense Reutilization and Management Service.<sup>12</sup>

#### **Recommendation A.1.** AF/A8 should:

- a. Dispose of the 110 T-3A aircraft in accordance with the approved disposition plan.
- b. Upon disposition, discontinue the annual T-3A security guard contract at the Hondo Municipal Airport (Auxiliary Field).

**Management Comments:** The AF/A8 occurred with the audit results, recommendations, and \$852,196 potential monetary benefit, and stated:

- a. "AF/A8P has coordinated the T-3A disposal actions and AETC is in the process of disposing of the aircraft in accordance with the approved disposition plan. Estimated Completion Date: 30 November 2006.
- b. "AETC has been notified to cancel the annual T-3A security guard contract at the Hondo Municipal Airport (Auxiliary Field). Completed: 1 June 2006. "

**Recommendation A.2.** AF/A8 should revise AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination*, 1 August 1997 to:

- a. Assign maintenance responsibility (e.g., Air Staff, MAJCOM) for excess aircraft in storage awaiting disposition.
- b. Specify a time limit for completing the aircraft disposition process.

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<sup>11</sup> Salvage reusable or saleable parts and scrap the remaining material.

<sup>12</sup> DoD 4160.21-M, *Defense Materiel Disposition Manual*, August 1997, allows the Air Force to dispose of excess aircraft due to safety concerns.

**Management Comments.** The AF/A8 concurred and stated: "AF/A8 will revise AFI 16-402, *Aerospace Vehicle Programming, Assignment, Distribution, Accounting, and Termination*, 1 August 1997 to:

a. "Assign maintenance responsibility (e.g., Air Staff, MAJCOM) for excess aircraft in storage awaiting disposition. Aircraft that have not been excessed from the Air Force active inventory will remain the responsibility of the owning MAJCOM. Estimated Completion Date: 1 December 2006.

b. "Specify a time limit for completing the aircraft disposition process. The disposition process will require 4 weeks from receipt to final disposition. Estimated Completion Date: 1 December 2006. "

**Evaluation of Management Comments.** Management agreed with the audit results, recommendations, and \$852,196 potential monetary benefit, and actions taken and planned are responsive to the issues and recommendations included in this Tab.

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**T-3A Aircraft History.** The T-3A Firefly is a propeller driven trainer aircraft that AETC used during most of the 1990s to screen pilot candidates. The T-3A was the newest version of Slingsby Aviation's T-67 Firefly line of military training aircraft. The prototype began flying during the summer of 1991, and the Air Force accepted delivery of the first 10 aircraft in February 1994. The Air Force Academy's 557th Flying Training Squadron used 60 of the aircraft for cadet pilot screening, and the 3d Flying Training Squadron at the Hondo Municipal Airport (Auxiliary Field) used 53 of the aircraft for the Introduction to Flying Training (IFT) program.

**Historically Significant Dates.** Since the Air Force began using the T-3A for the flight screening program in March 1994, a number of events have impacted T-3A fleet management. The following is a chronological list of significant T-3A-related events in Air Force history.

**March 1994** – The Air Force began using the T-3A for the flight screening program at the Hondo Municipal Airport (Auxiliary Field).

**February – July 1994** – T-3A engines failed 12 times during ground operations at idle or low revolutions per minute settings.

**July 1994** – The Air Force Chief of Staff grounded the T-3A fleet due to engine problems.

**September 1994** – T-3A training resumed at the Hondo Municipal Airport (Auxiliary Field) after a modified fuel system was installed.

**February 1995** – First T-3A mishap at the Air Force Academy.

**September 1996** – Second T-3A mishap at the Air Force Academy.

**June 1997** – Third T-3A mishap at the Air Force Academy.

**July 1997** – T-3A flight operations were terminated and a Broad Area Review was commissioned on the flight screening program.

**March 1998** – An Inspector General report recommended changes to the flight screening program, including additional modifications to the T-3A fuel systems.

**June 1998** – The Air Force Chief of Staff directed installation of an extraction system to make the T-3A airworthy.

**August 1998** – The Air Force Academy and Hondo Municipal Airport (Auxiliary Field) flight screening programs were cancelled.

**September 1998** – AETC personnel put the T-3A in minimum maintenance status.

## Background Information

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**October 1998** – AETC personnel implemented the IFT program, purchasing flight instruction from independent aviation schools near Reserve Officer Training Corps detachments and Air Force bases around the country.

**October 1999** – AETC personnel issued a press release announcing the end of the Enhanced Flight Screening program, the cessation of T-3A flying operations, and the adoption of the IFT program. AETC personnel requested T-3A disposition instructions.

**April 2000** – AETC personnel inactivated the 3d Flying Training Squadron (FTS) at the Hondo Municipal Airport (Auxiliary Field).

**September 2000** – AETC personnel submitted a second request for T-3A disposition instructions.

**October 2000** – The Air Force reassigned the 557th FTS from the 12th Flying Training Wing (FTW) to the Air Force Academy.

**November 2001** – The Air Staff Director of Operational Training requested the Air Force Flight Test Center Commander evaluate the feasibility of using the T-3A as a companion trainer for pilot proficiency.

**January 2002** – The Air Force Chief of Staff authorized additional T-3A testing and evaluation with Air Force Materiel Command as the lead.

**March 2002** – AETC personnel submitted a third request for T-3A disposition instructions.

**August 2003** – AETC personnel submitted a fourth request for T-3A disposition instructions.

**June 2005** – The Air Force reached a \$5.5 million settlement with Slingsby Aviation, and AETC personnel submitted a fifth request for T3-A disposition instructions.

**December 2005** – Oklahoma City ALC engineers determine the T-3A fleet was no longer airworthy and would be difficult to economically turn to airworthy condition.



### AUDIT SCOPE

**Audit Coverage.** We performed this audit at HQ Air Force and three locations (Appendix III). We accomplished audit work from January through March 2006 and reviewed documents dated from March 1992 through April 2006. We provided a draft report to management in May 2006.

- **Maintenance.** We inventoried and inspected 55 T-3A aircraft and 3 T-3A shipping crates (2 crates containing 4 disassembled aircraft and 1 crate containing supplies) stored at the Hondo Municipal Airport (Auxiliary Field). We also inventoried and inspected four aircraft located at Edwards AFB CA. In addition, we interviewed AETC personnel to determine maintenance actions performed on the aircraft during storage, and we reviewed AFIs, AMARC procedures, and the T-3A aircraft maintenance schedule to determine T-3A long and short-term maintenance requirements. We also examined T-3A historical records and invoices to determine the value of on-hand supplies and fuel system modification kits.
- **Disposition.** We interviewed Air Staff and AETC personnel and reviewed T-3A disposition records, documents, and related Air Force and DoD guidance to determine T-3A disposition requirements, status, and plans. We also reviewed spreadsheets prepared by ACC personnel and the *Report of Findings, T-3A Fleet Condition Assessment*, 10 June 2002 prepared by Oklahoma City ALC personnel detailing the cost to return the fleet to an airworthy condition. We examined the Hondo Municipal Airport (Auxiliary Field) security guard contract to identify costs and contractual obligations. In addition, we reviewed aircraft inventory records and the Reliability and Maintenance Information System Standard Asset Value Report to determine the current book value of the T-3A fleet.

**Sampling Methodology.** We did not use computer-assisted audit tools and techniques or statistical sampling methods to project the audit results. We used judgmental sampling methods to select 59 of 110 aircraft for physical inventory. Specifically, we selected all 55 aircraft stored in hangars and under canopies at the Hondo Municipal Airport (Auxiliary Field), and we opened and examined two easily accessible crates containing four disassembled aircraft.

**Data Reliability.** We relied on computer-generated data from the Reliability and Maintenance Information System; however, we did not evaluate the adequacy of the system's general and application controls. Instead, we established data reliability by comparing Reliability and Maintenance Information System reports to physical inventory results. Our tests disclosed the data was sufficiently reliable to support our audit conclusions and recommendations.

## **Audit Scope and Prior Audit Coverage**

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**Auditing Standards.** We conducted this audit in accordance with generally accepted Government auditing standards and, accordingly, included tests of management controls related to T-3A fleet management. Specifically, we tested controls for proper authorization of transactions, appropriate segregation of duties, adequate documentation and recording of transactions, and safeguards over access to the T-3A fleet.

### **PRIOR AUDIT COVERAGE**

We did not identify any Air Force Audit Agency, DoD Inspector General, or Government Accountability Office reports issued within the past 5 years that addressed the same or similar objectives as this audit.

## Locations Audited/ Reports Issued

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<u>Organization/Location</u>	<u>Installation-Level Reports Issued</u>
<b><u>Headquarters United States Air Force</u></b>	
Deputy Chief of Staff for Strategic Plans and Programs (AF/A8)	NONE
<b><u>Air Education and Training Command (AETC)</u></b>	
HQ AETC Randolph AFB TX	NONE
Hondo Municipal Airport (Auxiliary Field) Hondo TX	NONE
<b><u>Air Force Materiel Command</u></b>	
412th Test Wing Edwards AFB CA	NONE

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## **Points of Contact**

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Personnel and Training Division (AFAA/SPP)  
Support and Personnel Audits Directorate  
2509 Kennedy Circle  
Brooks City-Base TX 78235-5516

Ronald M. Jensen, Associate Director  
DSN 240-2280  
Commercial (210) 536-2280

Daniel R. Bogart, Program Manager

Angela D. Crawford, Audit Manager

We accomplished this audit under project number F2006-FD4000-0223.000.

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The disclosure/denial authority prescribed in AFPD 65-3 will make all decisions relative to the release of this report to the public.

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